

Abandoned Uranium Mine Site Assessment for the Inez-Hummer Site (NM0132)

FINAL REPORT

Prepared For:



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NM0132

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1.0 INTRODUCTION

INTERA Incorporated (INTERA) has prepared this Abandoned Uranium Mine (AUM) Site Assessment Report for the Mining and Minerals Division (MMD) of the New Mexico Energy, Minerals and Natural Resources Department (EMNRD) in compliance with the Professional Service Agreement dated November 2, 2009. INTERA visited the Inez-Hummer Mine Site (AUM Site), MMD ID: NM0132, on March 3, 2010.

1.1 PREVIOUSLY KNOWN INFORMATION ABOUT THE SITE

The AUM Site was registered as the Inez-Hummer and is located in the White Signal Mining District. This AUM Site is also known as the “Good Luck” and the “7-X-V Ranch” mines. This AUM Site produced a total of 848 pounds of U_3O_8 ore at an average production grade of 0.16 percent according to McLemore (1983); and Anderson (1980) reports that uranium production at this AUM Site was two carloads of ore that averaged 0.2 percent U_3O_8 . The AUM Site deposit is characterized as an epithermal quartz-pyrite vein deposits occurring in Precambrian granite (McLemore, 1983, McLemore and Chenoweth, 1989). Epithermal veins are fracture fillings in igneous and metamorphic rocks (McLemore and Chenoweth, 1989).

The Anderson Report describes this AUM Site as open pits, cuts, vertical shafts, and adits (Anderson, 1980). Mines and prospect pits are extremely numerous in this area. McLemore (1983) describes this AUM Site as open cuts, adits, pits, and 20-21 feet deep shafts within the hydrothermal vein (McLemore, 1983).

1.2 SITE LOCATION AND DIRECTIONS

The Inez-Hummer Mine Site is located on private land in SE 1/4 Section 24, Township 20 South, Range 15 West and SW 1/4 Section 19, Township 20 South, Range 14 West. Other mine features in SW 1/4 Section 25, Township 20 South, Range 15 West were not surveyed because the landowner did not give permission for INTERA to access the Site. The AUM Site is located in Grant County and is approximately 17 miles south-southwest of the town of Silver City in the southern end of the Big Burro Mountain Range (please see Figure 1). Three areas were assessed for this AUM Site. The three areas were characterized as the Eastern, Northern, and Western Areas (please see Figure 2 and 3).

To reach the AUM Site from Albuquerque, drive approximately 170 miles south on Interstate 25. Take Exit 63 towards Hillsboro and get on NM-152. Take NM-152 approximately 65 miles to Santa Clara. At Santa Clara, take US-180 west, turning right on Silver Heights Blvd, for approximately 8 miles to Silver City. In Silver City take a slight left at N Hudson St/NM-90 E. Drive south on NM-90 for approximately 17.5 miles and then turn left on White Water Road, a maintained dirt road. Drive for about 0.75 miles on White Water Road, take the left fork to continue on White Water Road another 0.75 miles. Then turn right onto Frost Road (also known as Barka Road). Drive south on Frost Road for approximately 0.90 miles to a sandy road that turns to the right.

This road turns west into Walnut Creek wash and follows the wash into a canyon. At approximately 0.30 miles stop and open the cattle gate. After crossing the gate the first mine

location (the Eastern Area) will be visible in the rock wall directly south of the road. Continue west along the wash another 0.30 miles and the second mine location (the Northern Area) is along the hill and on top of the ridge to the north. To access the third mine location (the Western Area), continue another 0.20 miles along the wash. Follow the road out of the drainage to the right until the road turns right (north). From here follow the drainage to the left, not the main Walnut Creek drainage which is on the right. Hike along the wash for approximately 0.35 miles until a road leading up the hill to the left is visible. Follow the road east up the hill for approximately 500 feet, then follow the road to the right for another 175 feet to the Western Area. Please see Figures 2 and 3 for the three mine locations; the Eastern Area, the Northern Area, and the Western Area.

Please note; this AUM Site (all three mine locations) is located on private land. After turning onto the Walnut Creek wash, permission for access must be obtained from the landowner.

1.3 SITE GEOLOGY

The AUM Site is located on the southern end of the Big Burro Mountains in Grant County, south of Silver City, on the western and northern sides of Saddle Mountain. The Burro Mountains are a tilted fault-block uplift of Precambrian granite and gneiss in the northwestern-trending transition zone between the Colorado Plateau Province and the Basin and Range Province (Trauger, 1965). The Precambrian core is overlain by Cretaceous and Tertiary sediments and Tertiary volcanic (McLemore, 1983). The White Signal Mining District in the Big Burro Mountains is characterized by hydrothermal veins filling fractures and faults in the granite and quartz diorite of Precambrian age, as well as in the Tertiary intrusive igneous rock (McLemore, 1983). These fracture and fault veins are characterized as quartz-pyrite veins, quartz-specularite, silver and silver-lead veins, and turquoise veins (McLemore, 1983). The AUM Site is located in a quartz-pyrite vein (McLemore, 1983). The uranium-bearing veins in this area of the Burro Mountains are small and irregular, but the area is considered favorable for uranium deposits (McLemore, 1983).

1.4 SITE HYDROGEOLOGY

The AUM Site locations are along the Walnut Creek drainage. Walnut Creek is an ephemeral stream that originates in the Big Burro Mountains, northwest of the AUM Site, and flows southeast. Walnut Creek sinks into the ground just east of the Luna County border. No perennial streams are present in the area surrounding the AUM Site.

The AUM Site is located on the western edge of the Mimbres Basin, which extends into Mexico (DBSA, 2005). Groundwater flow in the basin is generally to the south-southeast, towards the U.S.-Mexico border (DBSA, 2005). The basin contains numerous unconfined and confined aquifers, depending on location. The major aquifer is the gravel and sand deposits that characterize the Tertiary and Quaternary alluvium (Heywood, 2002).

1.5 REGIONAL TOPOGRAPHY AND TERRAIN

The AUM Site can be found on the White Signal Quadrangle 7.5 minute United States Geological Survey topographic map at elevations between 5800 and 5900 feet above mean sea level (please see Figure 2). The Site is on the southern-most end of the Big Burro Mountains.

The AUM Site is located near Saddle Mountain (~6300 feet above mean sea level) to the north and the west. The Western Area is located on the west flank of Saddle Mountain, the Eastern Area is located on the northern flank of Saddle Mountain, and the Northern Area is located on the ridge north, and across Walnut Creek, of Saddle Mountain (see Figure 2). The broader region around the AUM Site consists of mountains and hills cut by streams and drainages. In general the area is steep and hilly. Figure 3 shows an aerial photograph of the terrain surrounding the AUM Site.

2.0 MINE FEATURES

The mine features described below are based on the features provided to INTERA by MMD in the GIS Data Dictionary (MMD, 2009). INTERA marked the locations of the AUM Site features using a Trimble Global Positioning System (GPS) and entered details about the features into the GPS using the MMD data dictionary. The AUM Site consists of eight adits, one shaft, three open cuts, five piles, one pit, one load out, two access roads, miscellaneous equipment, and one water tank. Please see the Photo Log in Appendix A for photos, Table 1 for a list of all AUM Site features, and Figures 4-6 for the locations of the AUM Site features. The Western Area features of the AUM Site are on Figure 4, the Northern Area features are on Figure 5, and the Eastern Area features are on Figure 6. Note that the scale differs between Figure 4a, 5a, and 6a (aerial photos) and 4b, 5b, and 6b (ownership maps) due to resolution on aerial photographs.

Please note that a fourth mine area was assessed but was determined not to be an abandoned uranium mine and so was left out of the assessment for the Inez-Hummer AUM Site. Because the features assessed for the fourth mine site were left out of this report, the numbering of this AUM Site features do not begin with feature 1. For example, ShaftPly-4 is the only shaft on the Inez-Hummer Site included in the AUM Site assessment.

2.1 MINE SHAFTS, ADITS, AND DECLINES

One shaft was found on the Northern Area of the AUM Site (ShaftPly-4), a 12 feet deep decline to water (Figure 5). The shaft found was open at the ground surface and not fenced off. Eight adits were found at the AUM Site. Two adits (Adit-1 and 2), both approximately 20 feet long were found at the Eastern Area (Figure 6). Four adits (Adit-3, 4, 5, and 6) were found at the Northern Area (Figure 5). One of these adits (Adit-3) was collapsed, this adit was at one time a very large adit with timbers for structural support and a loadout at its entrance. Adit-4 is a small adit, approximately 5 feet long, connecting to Adit-5. Adit-5 had an unknown length and extended into the hill to the northeast. Adit-6, west of Adit-4 and 5, extended approximately 10 feet into the hill in the same direction as Adit-5. Adits-7 and 8 were found in the Western Area of the AUM Site (Figure 4). Adit-7 extends approximately 15 feet into the southern wall of CutLn-3 and adit-8 extends to an unknown depth into the eastern wall of CutLn-3.

2.2 MINING AND EXPLORATION PITS AND OPEN CUTS

Three open cuts and one pit were identified at the AUM Site. CutLn-3 and Pit-1 were identified in the Western Area of the AUM Site (Figure 4). CutLn-3 was an open cut trending east-west into the slope of Saddle Mountain and contained the openings for adits 7 and 8. Pit-1 was an

exploration pit located northwest of the open cut in the Western Area. CutLn-1 and 2 were found in the Northern Area of the AUM Site (Figure 5). CutLn-1 is a long, narrow cut on the top of the ridge and CutLn-2 is located approximately 60 feet northwest of collapsed Adit-3.

2.3 WASTE AND ORE PILES AND DISTURBANCES

Five waste piles were found onsite. Four of the five piles were found in the Northern Area (Figure 5). Two (PileRidge-1 and 2) are associated with CutLn-1, PilePly-3 is associated with ShaftPly-4, and the other (PileRidge-3) is associated with CutLn-2. The remaining waste pile was found in the Western Area (Figure 4). PilePly-4 is associated with CutLn-3. All of the piles are associated with exploration or mining features and consist of waste rock material.

2.4 MINING RELATED BUILDINGS AND FOUNDATIONS

No mining related buildings and foundations were evident at the AUM Site.

2.5 OTHER MINE FEATURES

An access road (Access-2) runs along the Walnut Creek was and runs north of the Eastern Area and south of the Northern Area of the AUM Site (Figure 2). Access-3 is the path hiked to reach the Western Area of the AUM Site.

One loadout feature consisting of a ramp (Loadply-1) and timber was found at the entrance to Adit-3 in the Northern Area (see Photo 41). A number of metal sluice boxes (Equip-1) were found near Adit-3 in the Northern Area of the AUM Site.

2.6 BOREHOLES

No boreholes were evident at the AUM Site.

2.7 RECLAMATION ACTIVITIES

No evidence of reclamation was found at the AUM Site.

3.0 ARCHEOLOGICAL SITES

No apparent archeological sites were identified at or near the AUM Site.

4.0 SITE GAMMA RADIATION READINGS

The background gamma radiation readings at the AUM Site were measured approximately 1000 feet from the Western and Northern Areas. The background gamma readings were measured at 20 microroentgens per hour ($\mu\text{R/hr}$) at the ground surface and 20 $\mu\text{R/hr}$ at 4 feet above the ground surface. Please see Table 2 for all of the gamma radiation readings taken at the AUM Site.

The highest gamma radiation readings at the AUM Site were found in the vicinity of CutLn-2 in the Northern Area. The cut had gamma radiation readings of 150 $\mu\text{R/hr}$ at the ground surface and 100 $\mu\text{R/hr}$ at 4 feet above the ground surface (Rad-15). Another gamma radiation reading (Rad-10) taken in CutLn-1 of the Northern Area was measured at 100 $\mu\text{R/hr}$ at the ground surface and 60 $\mu\text{R/hr}$ at 4 feet above the ground surface. The highest reading in the Western Area was measured in Adit-7 and measured 60 $\mu\text{R/hr}$ at the ground surface and 36 $\mu\text{R/hr}$ at 4 feet above the ground surface. The highest reading in the Eastern Area was measured in Adit-1 and measure 47 $\mu\text{R/hr}$ at the ground surface and 44 $\mu\text{R/hr}$ at 4 feet above the ground surface. Please see Table 2 for more details.

5.0 CURRENT LAND USES

5.1 HUMAN ACTIVITY AND RECREATIONAL SITE USE

Ranching was evident at and surrounding the AUM Site. This evidence includes cow tracks, fences, corrals, and water catchments. The property is a cattle ranch. Extensive evidence of past mining and exploration activity is evident in the area surrounding the AUM Site.

5.2 NEARBY RESIDENTIAL, COMMERCIAL AND INDUSTRIAL STRUCTURES

There are at least seven residential or commercial structures within a 1-mile radius of the AUM Site (Figure 3). All of the structures are located north to west of the AUM Site and are up gradient for both surface water and groundwater flow.

5.3 NEARBY DOMESTIC WELLS

There are five domestic wells within a 1-mile radius of the AUM Site. The wells are all privately owned and were drilled between 1999 and 2004. The average well depth is about 250 feet below the ground surface and the average depth to water is about 53 feet below the ground surface.

5.4 EVIDENCE OF GRAZING OR AGRICULTURE

Fences, corrals, and water catchments in the area attest to active and past ranching activity. Cattle were seen along the access roads to the AUM Site.

5.5 EVIDENCE OF WILDLIFE

Cottontail rabbits and numerous bats in the adits were observed at the AUM Site. Deer tracks were also identified around the AUM Site.

6.0 VEGETATION

The Inez-Hummer site is located in the Dessert Grassland Ecotone. The woody species identified at the AUM Site include Emory oak, Alligator Juniper, Common Sotol, cholla, prickly pear, Hedgehog cactus, and Snakeweed. The grass species observed includes grama grass, Dropseed,

and Beargrass. No forbs were observed at the AUM Site and there was no evidence of noxious weeds.

7.0 POTENTIAL OFFSITE IMPACTS

7.1 EROSION

No erosion was associated with mine features at the AUM Site.

7.2 ENVIRONMENTAL IMPACTS

There is no evidence of soil staining from chemicals potentially brought to the AUM Site.

8.0 REFERENCES

- Anderson, Orin J., 1980. Abandoned or Inactive Uranium Mines in New Mexico. New Mexico Bureau of Mines and Mineral Resources Open File Report 148.
- Daniel B. Stephens & Associates, Inc (DBSA), 2005. Southwest New Mexico Regional Water Plan. Prepared for: Southwest New Mexico Regional Water Plan Steering Committee, City of Deming, New Mexico.
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- Mining and Minerals Division (MMD), 2009. Mine Feature Data Dictionary.
- New Mexico Office of the State Engineer (NMOSE), 2008. Wells and Surface Diversions in New Mexico. WATERS_PODS_may08.shapfile. OSE Waters Database.
- Trauger, Frederick D., 1965. Geologic Structure Pattern of Grant County, New Mexico. New Mexico Geological Society Fall Field Conference Guidebook – 16 Southwestern New Mexico II, eds. J. Paul Fitzsimmons and Christina L. Balk, pp. 184-187.

TABLES

Table 1
Site Features

Inez-Hummer-NM0132
Abandoned Uranium Mine Assessments

Feature Name	On Site?	Feature Type	Associated Feature	Material	Height or Depth (ft)	Width or Diameter (ft)	Length (ft)	Open	Collapsed	Closure Type	Associated Photo	Notes
Access-2	Yes	Other	--	--	--	--	--	--	--	--	--	Hiking from Access 3 to Adit-7, 8
Access-3	Yes	Dirt	--	--	--	--	--	--	--	--	--	Sandy drainage and maintained road
Adit-1	Yes	--	--	--	5	5	20	Yes	No	None	NM0132_017	Back of cave
Adit-2	Yes	--	--	--	4	4	20	Yes	No	None	NM0132_018	Back of cave
Adit-3	Yes	--	--	--	--	--	--	No	Yes	Collapsed	NM0132_038 NM0132_039	Structural timber beams around collapsed entrance
Adit-4	Yes	--	Adit-5	--	3	3	5	Yes	No	None	NM0132_044	Base of slope
Adit-5	Yes	Decline	Adit-4	--	2	6	--	Yes	No	None	NM0132_045	Base of slope
Adit-6	Yes	--	--	--	3	3	10	Yes	No	None	NM0132_049	--
Adit-7	Yes	--	CutLn-3	--	3	3	15	Yes	No	None	NM0132_050	--
Adit-8	Yes	--	CutLn-3	--	4	5	40	Yes	No	None	NM0132_051	--
CutLn-1	Yes	--	PileRidge-1-2	--	5	3	40	--	--	--	NM0132_031 NM0132_032	--
CutLn-2	Yes	--	Adit-3	--	10	5	20	--	--	--	NM0132_042	--
CutLn-3	Yes	--	Adit-7-8	--	4	7	20	--	--	--	NM0132_052 NM0132_053	Adit-7 in south wall and Adit-8 in east wall
Equip-2	Yes	Sluice boxes	Adit-3	--	--	--	--	--	--	--	NM0132_040	Wood and tin sluice boxes
LoadPly-1	Yes	Ramp	Adit-3	Rock	--	--	--	--	--	--	NM0132_041	--
PilePly-3	Yes	Waste	ShaftPly-4	Rock	3	10	15	--	--	--	NM0132_022	--
PilePly-4	Yes	Waste	CutLn-3	Rock	8	15	30	--	--	--	NM0132_054	--
PileRidge-1	Yes	Waste	CutLn-1	Rock	3	8	15	--	--	--	NM0132_033	--
PileRidge-2	Yes	Waste	CutLn-1	Rock	2	5	30	--	--	--	NM0132_034	--

Table 1
Site Features

Inez-Hummer-NM0132
Abandoned Uranium Mine Assessments

Feature Name	On Site?	Feature Type	Associated Feature	Material	Height or Depth (ft)	Width or Diameter (ft)	Length (ft)	Open	Collapsed	Closure Type	Associated Photo	Notes
PileRidge-3	Yes	Waste	CutLn-2	Rock	1	5	15	--	--	--	NM0132_043	--
Pit-1	Yes	Exploration	--	--	4	5	8	--	--	--	NM0132_055	Near CutLn-3, Adit-7-8
ShaftPly-4	Yes	Decline	PilePly-3	--	12	5	--	Yes	--	Open	NM0132_021	--
Tank-1	Yes	Water	--	--	22	10	--	--	--	--	NM0132_035	--

Notes:
-- designates no information
By convention, adits have height, width, and length but not depth.



Table 2
Gamma Radiation Survey Results

Inez-Hummer-NM0132
Abandoned Uranium Mine Assessments

Reading ID	Associated Feature	Reading at 0ft Above Ground (μR/hr)	Reading at 4ft Above Ground (μR/hr)	Associated Photo
Rad-6	Adit-1	47	44	
Rad-7	Adit-2	40	38	
Rad-8	ShaftPly -4 (1)	41	39	
Rad-9	PilePly -3 (1)	80	40	NM0132_022
Rad-10	CutLn-1	100	60	
Rad-11	PileRidge-1	32	30	
Rad-12	PileRidge-2	31	30	
Rad-13	CutLn-1	45	41	
Rad-14	Adit-3	29	29	
Rad-15	CutLn-2	150	100	
Rad-16	PileRidge-3	60	42	
Rad-17	Adit-4	40	31	
Rad-18	Adit-5	90	40	
Rad-19	Adit-6	40	32	
Rad-20	Adit-7	60	36	
Rad-21	Adit-8	44	39	
Rad-22	CutLn-3	34	28	
Rad-23	PilePly-4 (2)	30	27	
Rad-24	PitPly-1	42	28	
RadBack-2		20	20	

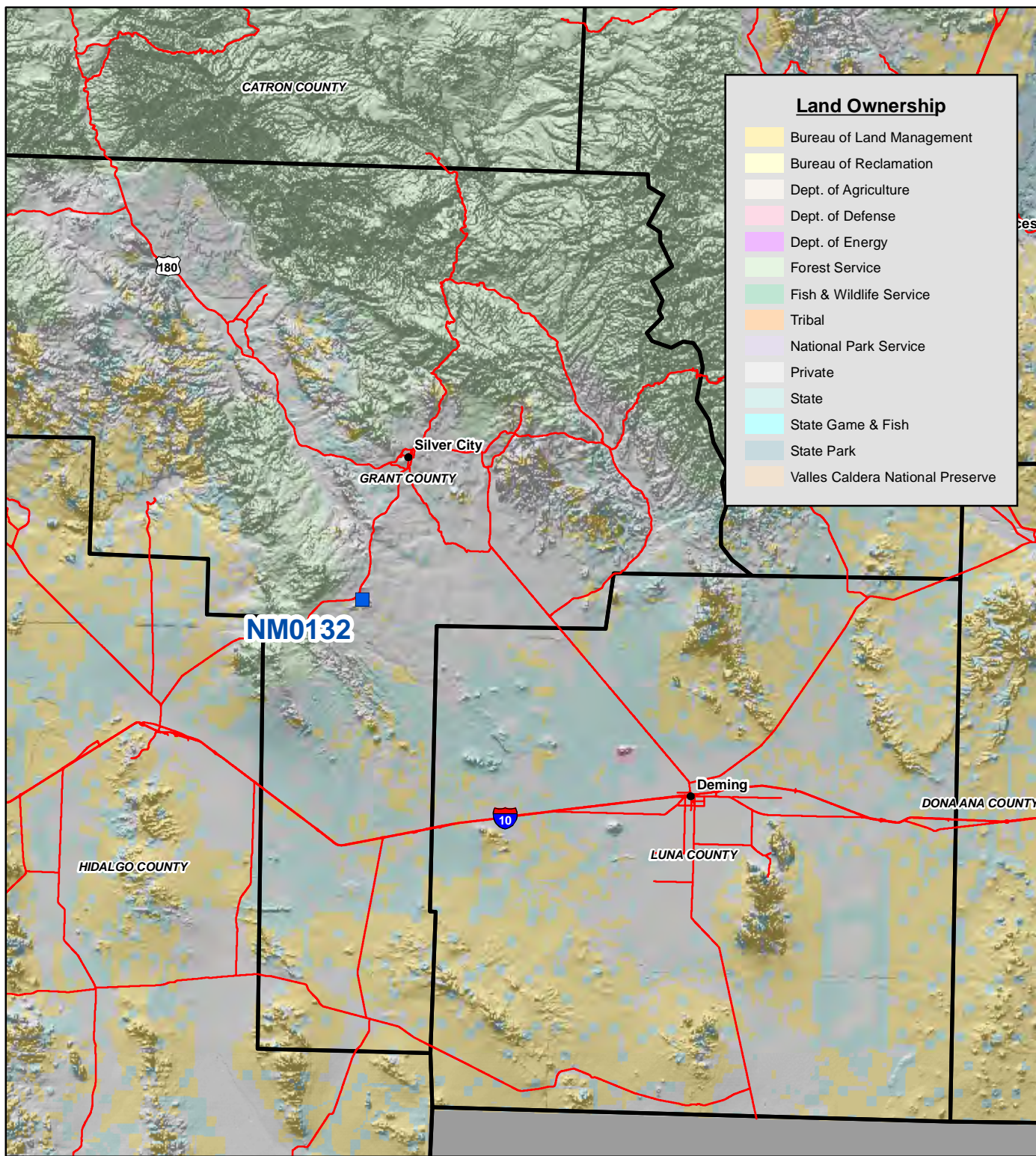
Notes:

All gamma readings at this site taken by Ludlum 192 μR/Ratemeter

μR/hr=microroetgens per hour

-- designates no information

FIGURES



Map Source(s):
Ownership - BLM, 2007

0 7.5 15 30
Miles

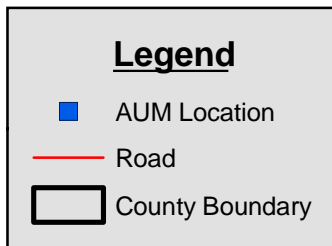
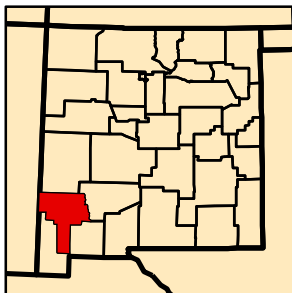
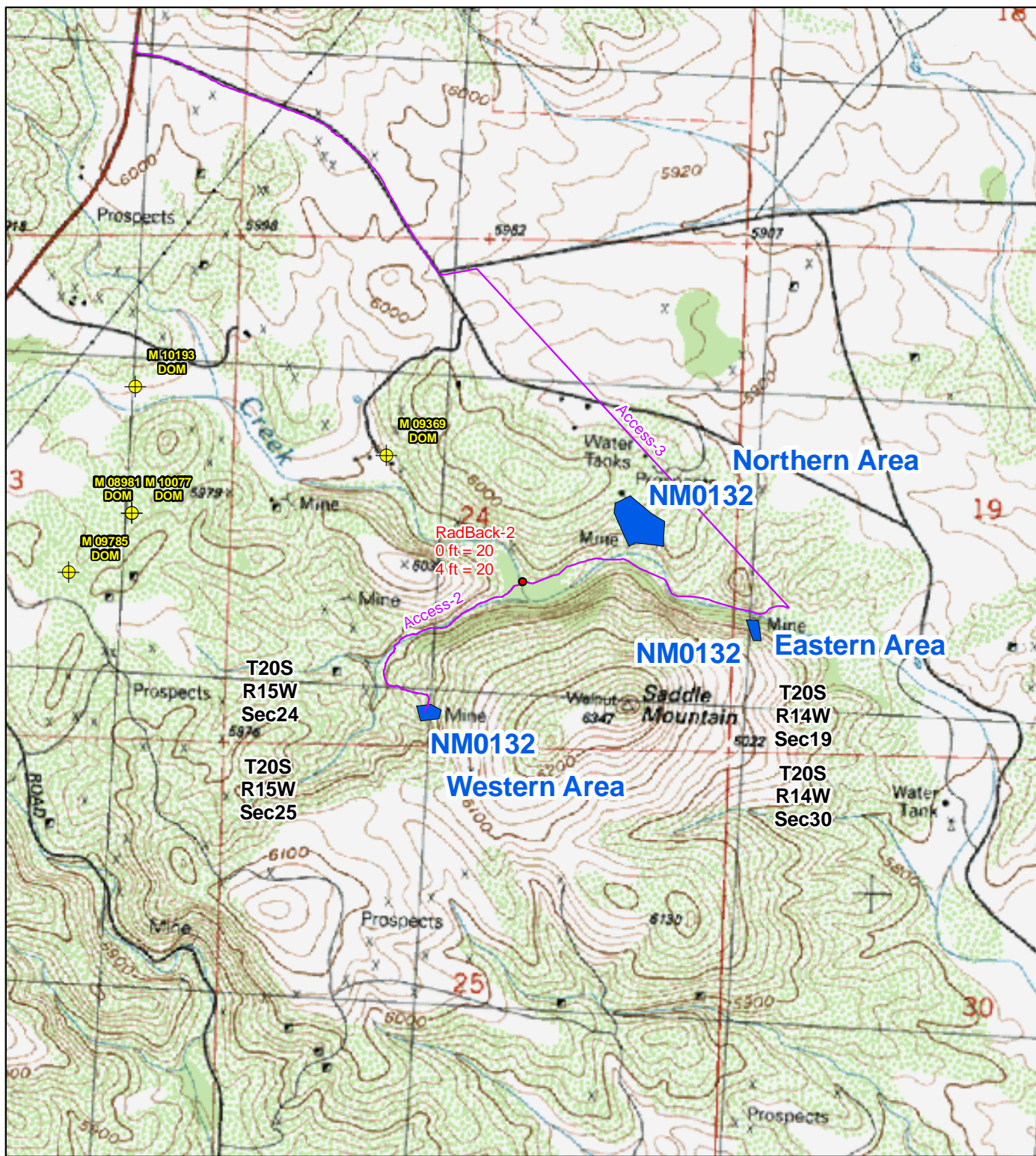


Figure 1
Site Location Map
NM0132-Inez-Hummer
Abandoned Uranium
Mine Assessment



Map Source(s):
U.S. Geological Survey 7.5-Minute
Topographic Map
-White Signal, 1992

0 750 1,500 3,000
Feet

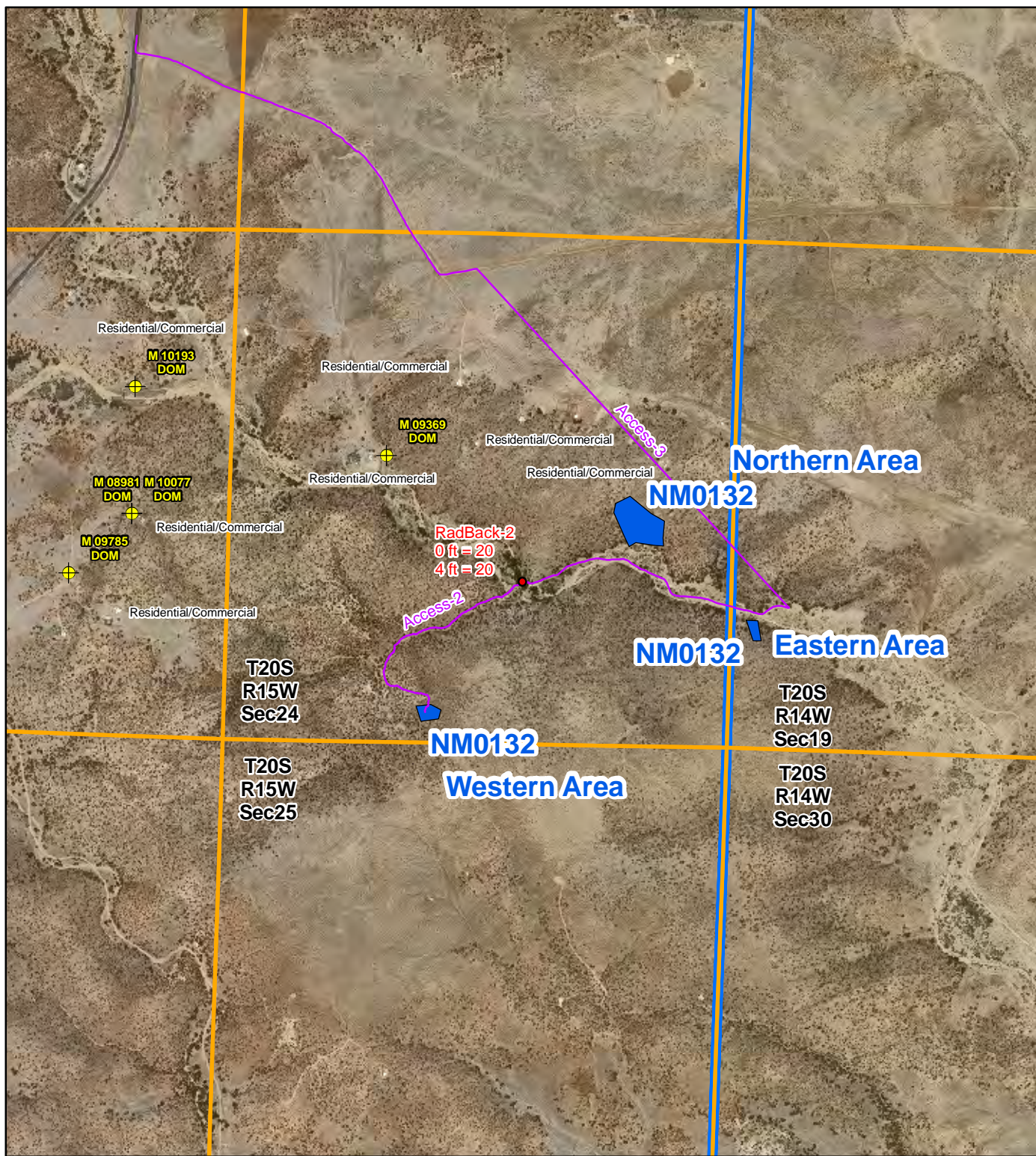
NORTH

Legend

- Radiation Readings ($\mu\text{R/hr}$)
- ⊕ Well Within 1 Mile of Site
- Access Route
- AUM Location Boundary (MMD Provided)

Figure 2
Topographic Map
NM0132-Inez-Hummer
Abandoned Uranium
Mine Assessment





Map Source(s):
U.S. Geological Survey 7.5-Minute
DOQQ County Mosaic
-Grant County, 2009

0 750 1,500 3,000
Feet



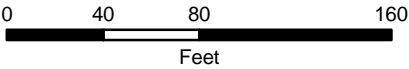
Legend

- Radiation Readings ($\mu\text{R/hr}$)
- ⊕ Well Within 1 Mile of Site
- Access Route
- AUM Location Boundary (MMD Provided)
- Section Boundary
- Township/Range Boundary

Figure 3
Aerial Photo
NM0132-Inez-Hummer
Abandoned Uranium
Mine Assessment



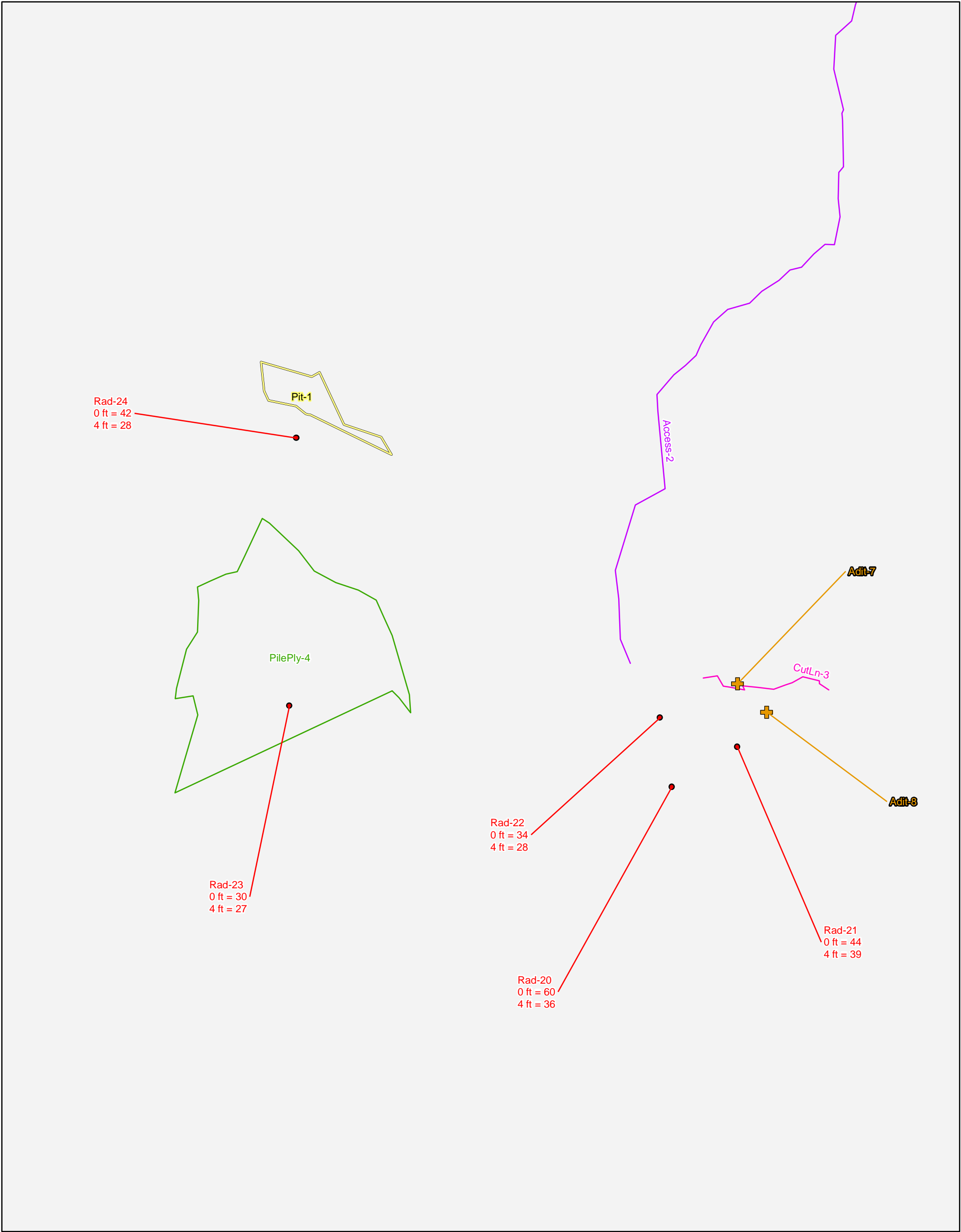
Map Source(s):
U.S. Geological Survey 7.5-Minute
DOQQ County Mosaic
-Grant County, 2009



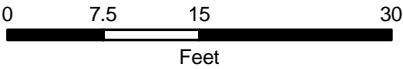
Legend

	Radiation Readings ($\mu\text{R/hr}$)		Pile Boundary
	Adit		Pit Boundary
	Open Cut		
	Access Route		

Figure 4a
Site Map on
Aerial Photo
NM0132-Inez-Hummer
Western Area
Abandoned Uranium
Mine Assessment



Map Source(s):
Ownership - BLM, 2008



Legend

- Radiation Readings (μR/hr)
- + Adit
- Open Cut
- Access Route
- Pile Boundary
- Pit Boundary

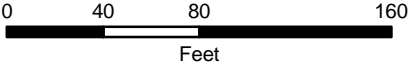
Surface Ownership

- Private

Figure 4b
Site Map with
Surface Ownership
NM0132-Inez-Hummer
Western Area
Abandoned Uranium
Mine Assessment



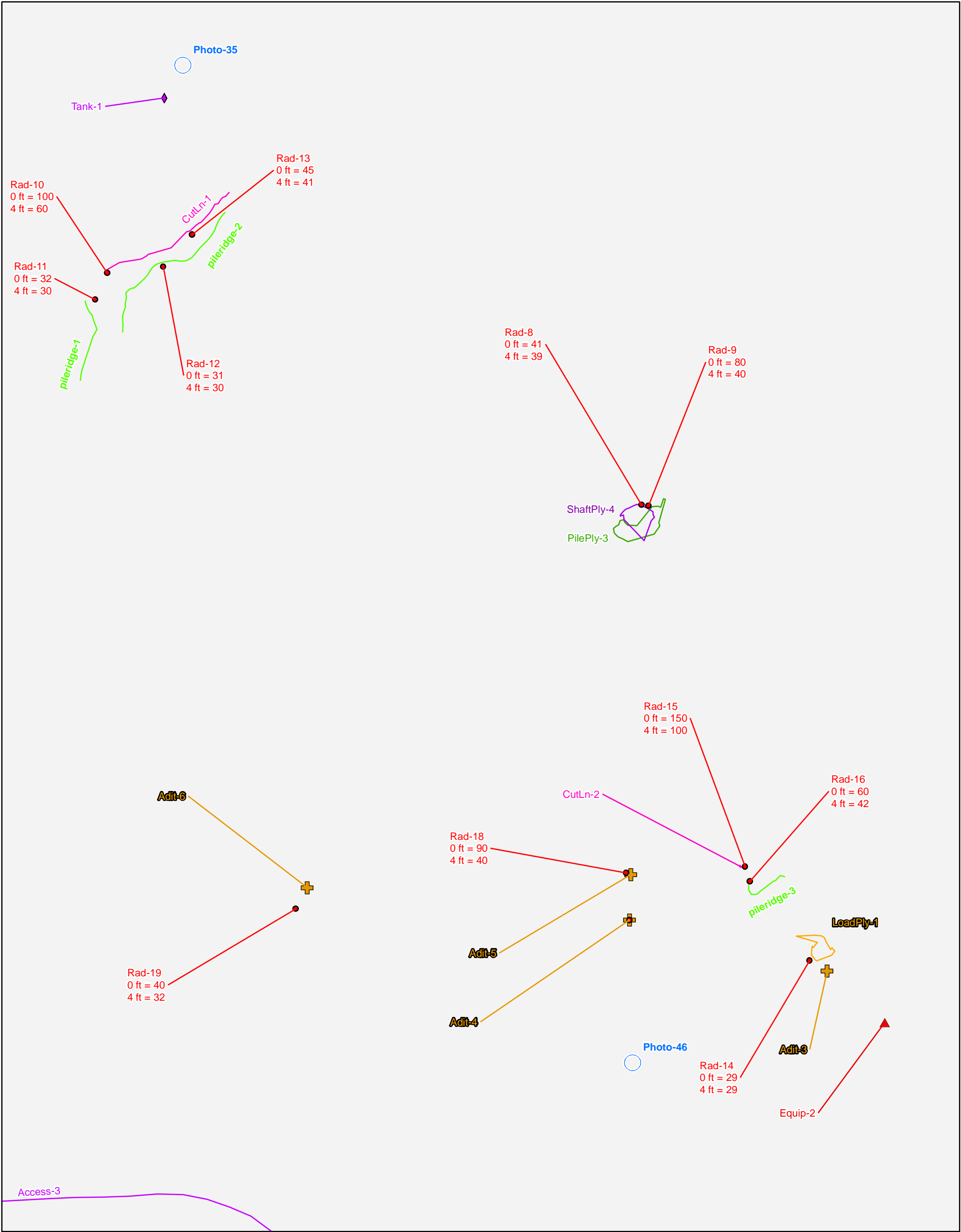
Map Source(s):
U.S. Geological Survey 7.5-Minute
DOQQ County Mosaic
-Grant County, 2009



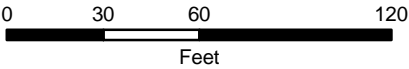
Legend

● Radiation Readings (µR/hr)	— Open Cut	□ Load Out Boundary
⊕ Adit	— Pile Ridge	□ Pile Boundary
▲ Equipment Location	— Access Route	□ Shaft Boundary
◆ Tank Location		
○ Photo Location		

Figure 5a
Site Map on
Aerial Photo
NM0132-Inez-Hummer
Northern Area
Abandoned Uranium
Mine Assessment



Map Source(s):
Ownership - BLM, 2008



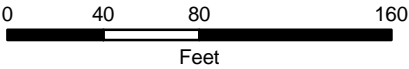
Legend

● Radiation Readings (µR/hr)	— Open Cut	□ Load Out Boundary
⛶ Adit	— Pile Ridge	□ Pile Boundary
▲ Equipment Location	— Access Route	□ Shaft Boundary
◆ Tank Location		Surface Ownership
○ Photo Location		□ Private

Figure 5b
Site Map with
Surface Ownership
NM0132-Inez-Hummer
Northern Area
Abandoned Uranium
Mine Assessment



Map Source(s):
U.S. Geological Survey 7.5-Minute
DOQQ County Mosaic
-Grant County, 2009



Legend

●

Radiation Readings (µR/hr)

+

Adit

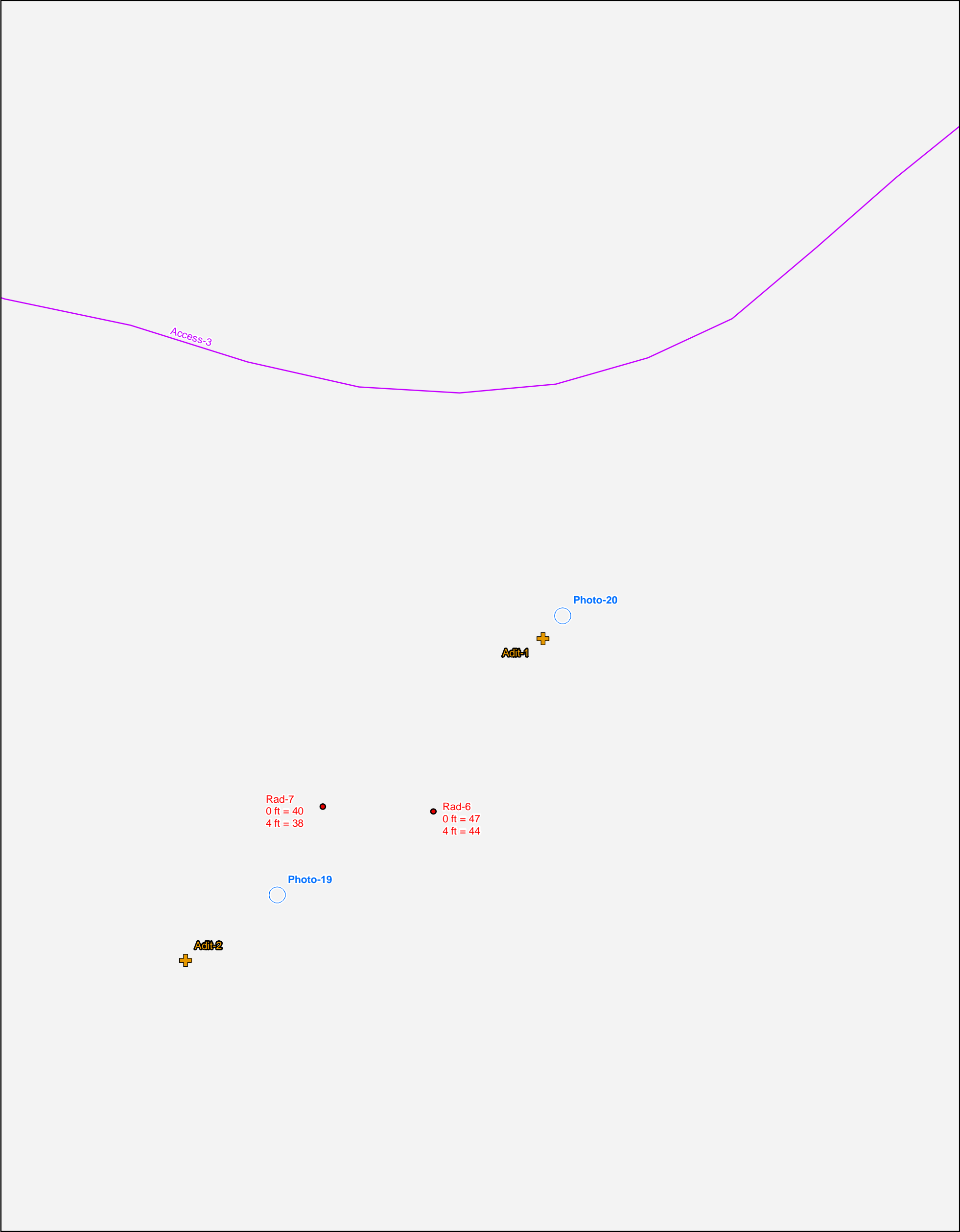
○

Photo Location

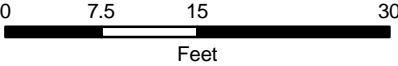
—

Access Route

Figure 6a
Site Map on
Aerial Photo
NM0132-Inez-Hummer
Eastern Area
Abandoned Uranium
Mine Assessment



Map Source(s):
Ownership - BLM, 2008



Legend

- Radiation Readings (µR/hr)
- Adit
- Photo Location
- Access Route

Surface Ownership

- Private

Figure 6b
Site Map with
Surface Ownership
NM0132-Inez-Hummer
Eastern Area
Abandoned Uranium
Mine Assessment

APPENDIX A

PHOTO LOG

Note: Gaps in the numbering sequence of the photos is the result of removing photos not suitable for the report. A full set of photos is provided in the electronic deliverable.



Photo 17-Looking southwest into Adit-1, Eastern Area.



Photo 18-Looking southwest into Adit-2, Eastern Area.



Photo 19-Looking west at wood pile, may have been a fence or gate.



Photo 20-Looking south at site name at Eastern Area.



Photo 21-Looking northeast at ShaftPly-4, Northern Area.



Photo 22-Looking north at PilePly-3, Northern Area.



Photo 23-Beargrass in the Northern Area of the AUM Site.



Photo 25-Prickley Pear in the Northern Area of the AUM Site.



Photo 27-Alligator Juniper in the Northern Area of the AUM Site.



Photo 31-Looking east up CunLn-1, Northern Area.



Photo 32-Looking west along CutLn-1, Northern Area.



Photo 33-Looking east at PileRidge-1, Northern Area.



Photo 34-Looking east at PileRidge-2, Northern Area.



Photo 35-Looking west at the water tank (Tank-1), Northern Area.



Photo 36-Hedgehog cactus in the Northern Area of the AUM Site.



Photo 38-Looking east at collapsed Adit-3, Northern Area.



Photo 39- Looking east at collapsed Adit-3, Northern Area.



Photo 40-Looking east at sluice boxes (Equip-2), Northern Area.



Photo 41-Looking north at the load out (LoadPly-1) at Adit-3, Northern Area.

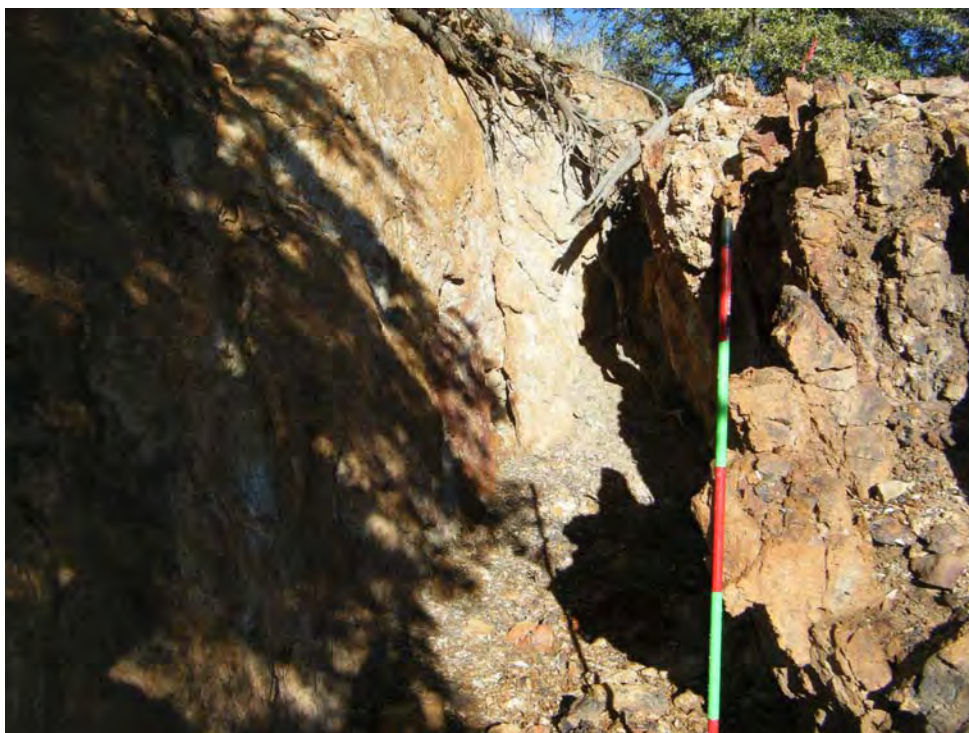


Photo 42-Looking east at CutLn-2, Northern Area.



Photo 43-Looking east at PileRidge-3, Northern Area.



Photo 44-Looking northeast at Adit-4, Northern Area.



Photo 45-Looking east at Adit-5, Northern Area.



Photo 47-Looking east at the Northern Area.



Photo 48-Looking east at the site name and part of the Northern Area.



Photo 49-Looking north at Adit-6, Northern Area.



Photo 50-Looking south at Adit-7, Western Area.



Photo 51-Looking east at Adit-8, Western Area.



Photo 52-Looking east at CutLn-3, Western Area.



Photo 53-Looking southeast at CutLn-3, Western Area.



Photo 54-Looking north at PilePly-4, Western Area.



Photo 55-Looking north at Pit-1, Western Area.

APPENDIX B

FIELD NOTES

Site Name: NMD132, INEZ-HUMMER

Objective: Site Assessment

Personnel: Annelia Tiaklenberg
Eileen Romesser

Equipment: Rental truck, Trimbel Geo XM
(SN: 4948447271) (2008 series); Ludlum 192
(SN: 234149); Fuji film digital camera
(No. 80839493); backup Garmin GPS; cell
phone amplifier; field laptop

1300 Meeting landowner Billy Billings at
White Water Rd and Hwy 90

1400 - Shaft Ply 1 - 200+ ft deep, 20' wide, 50' long
timber supports inside; main shaft

Photo 1 - shaft Ply 1 looking north

Photo 2 - looking into shaft Ply 1

Photo 3 - shaft Ply 1 looking south

Rad-1 south end of shaft Ply 1 0m - 30 R/hr; 1m - 28 R/hr

Rad-2 east end of shaft Ply 1 0m - 60 R/hr; 1m - 35 R/hr

Shaft Ply 1 - had 3 openings; 2 may have been
collapsed; northern aspect

Shaft Ply 2 - Decline; ~200ft deep, 10 x 10' diameter
shaft has been supported on walls with
timber and cement

Photos 4-5, shaft Ply 2, looking east and west

Equip 1 - Timber near shaft Ply 2, looks like it
was a tripod structure

Photo 6 - Equip 1, looking east

Rad-3 - Shaft Ply 2 - 0m - 32 R/hr; 1m - 29 R/hr

Photo 7 - looking east at head RT structure Ply 1

Structure Ply 1 - 5' high stone foundation, 10 x 10'
also a RT 5 cement bracings and a 10' x 5' cement
foundation

Photo 8 - looking east at structure Ply 1

Photo 9 - looking east at structure Ply 1

Photo 10 - looking south at structure Ply and
shaft Ply 1

Photo 11 - looking west down of structure Ply 1

Photo 12 - looking southeast at shaft Ply 1

Pile Ply 1 - 15' wide, 20' long, 3' high - NE of
shaft Ply 1

Photo 13 - looking north at Pile Ply 1

Rad-4 - Pile Ply 1 - 0m - 70 R/hr; 1m - 41 R/hr

1430

Shaft Ply 3 - ~200' deep, 5 x 5' decline to the
west

Photo 14 - looking northwest at shaft Ply 3

75 3/03/10 ACT Abandoned Uranium Mines

Subsidence Ply 1 - near shaft Ply 3; 1' deep, 6x6' wide

Photo 15 - looking north at subsidence Ply 1

Pile Ply 2 - near shaft Ply 3; 4' high, 8' wide, 15' long

Photo 16 - looking north at pile Ply 2

Rad 5 - pile Ply 2 - 0m - 28 μ R/h; 1m - 26 μ R/h

Dist Ply 1 - Disturbed Area

Background Rad - 0m - 20 μ R/h; 1m - 19 μ R/h

Notes: Rancher noted 1 shaft north of site about 100ft deep, 2 shafts south of site about 200ft deep and 15ft deep, and 1 shaft about 0.5 mile north west of site about 100ft deep. We will return to gps locations if there is time. Rancher also thought the area was an old mining claim, though no claim markers were found.

Access Rd 1 - from southern shafts to Adit at base of slope, Adit 3.

Soils - thin, rocky, tan sand

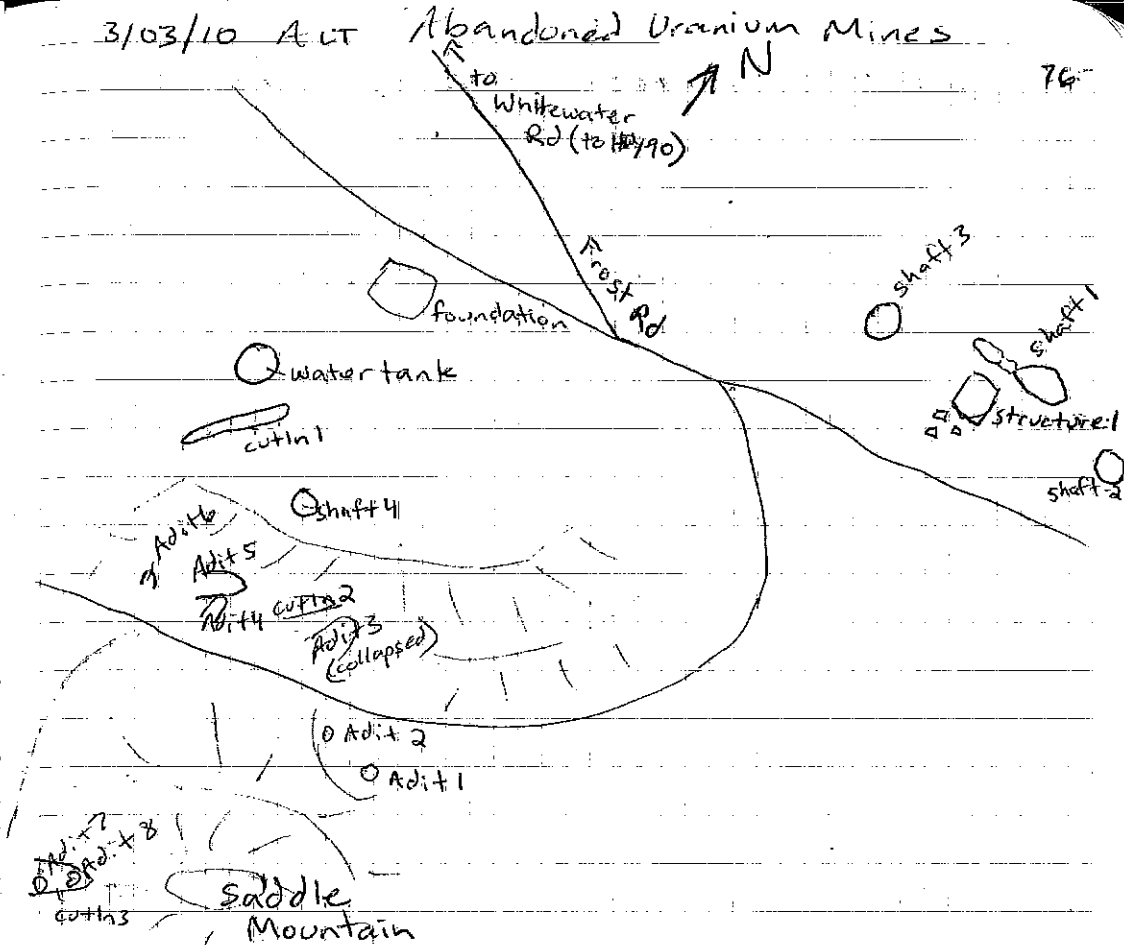
Rocks - Limestone, secondary mineralization, pyrite-quartz veins

Human Activity - Grazing

Wild life - owl in shaft; scrub oak, cholla, blue grama, other grasses

3/03/10 ACT Abandoned Uranium Mines

76



Note: Shafts 1-3 were not near Inez-Humer mine claim location, about 3 miles east of the adits marked for Inez-Humer. Three Adit locations (polygons) were provided by client. These three locations are near Saddle Mountain, up ^{ACT} a tributary of Walnut creek. Two adit locations are on Saddle Mountain, one on the north slope and the other on the west slope. The other adit location (Adit 3.6) is on the south slope on the hill north of Saddle Mountain.

77. 3/03/10 ALT Abandoned Uranium Mines

1500

Adit-1; back of cave; 5' tall, 5' diameter, 20' deep

Photo 17 - looking ^{south ALT} ~~northwest~~ into adit

Adit-1 trend ^{south ALT} ~~northwest~~

Rad-6 - Adit 1; 0m - 47 uR/h; 1m - 44 uR/h

Adit-2 - back of cave, ^{south ALT} ~~north~~ of Adit 1; ^{south ALT} ~~northwest~~
4' tall, 4' wide, 20' deep

Photo 18 - looking northwest into Adit 1

Rad-7 - Adit 2; 0m - 40 uR/h; 1m - 38 uR/h

Photo 19 - looking ^{ALT} ~~northwest~~ at wood pile, may
have been gate or fence

Photo 20 - site location, looking west

1530 - shaft Ply 4 - trends ^{north ALT} ~~south~~; 12' deep; 5' x 5' diameter

Photo 21 - looking ^{north ALT} ~~south~~ east at shaft Ply

Rad-8 - shaft Ply 4; 0m - 41 uR/h; 1m - 39 uR/h

Pile Ply-3 - near shaft Ply 4; 3' high; 10' wide, 15' long

Photo 22 - Pile Ply 3 looking north

Rad-9 - Pile Ply 3 - 0m - 80 uR/h; 1m - 40 uR/h

Photos 23-30 - Vegetation

Cutln-1 - 5' deep, 3' wide, 40' long - trends east-west

Photo 31 - looking east up cutln-1

Photo 32 - looking west cutln-1

Rad 9 - cutln-1; 0m - 100 uR/h; 1m - 60 uR/h; west end

3/03/10 ALT Abandoned Uranium Mines 78

Pile Ridge ^{1 ALT} ~~A~~ - 3' tall, 8' wide, 15' long, west end of cutln-1

Photo ~~32~~ ^{ALT} 33 - Pile Ridge 1 - looking east

Rad 11 - Pile Ridge 1 - 0m - 32 uR/h; 1m - 30 uR/h

Pile Ridge 2 - 2' tall, 5' wide, 30' long; west end of cutln-1
^{ALT}

Photo 34 - Pile Ridge 2 - looking east

Rad 12 - Pile Ridge 2 - 0m - 31 uR/h; 1m - 30 uR/h

Rad 13 - cutln-1, east end; 0m - 45 uR/h; 1m - 41 uR/h

Tank Pt-1 - 22' high, 10' diameter

Photo 35 - looking west at Tank Pt 1

Photos 36-37 - Vegetation

1624

Adit 3 - collapsed, trends east, unknown diameter

Photo 38 - Adit 3 looking east

Rad 14 - Adit 3; 0m - 29 uR/h; 1m - 29 uR/h

Photo 39 - Adit 3 looking ^{north ALT} ~~south~~ east

Equip 2 - south of Adit 3 ^{ALT} ~~looking east~~ sluice boxes

Photo 40 - looking east at Adit 3

Load Ply-1 - west of Adit 3 ramp, rock material

Photo 41 - looking north at Load Ply 1

79 3/03/10 ALT Abandoned Uranium Mines

1635

Cutln-2 - 10' deep, 5' wide, 20' length; north of Adit 3, trending east-west

Photo 42 - looking east at Cutln 2

Rad 15 - Cutln 2 - 0m - ~~120~~^{150 ALT} mR/h; 1m - 100 mR/h

Pile Ridge-3 - south of Cutln-2; 1' ft high, 5' wide, 15' wide
Photo 43 - looking east at Pile Ridge 3

Rad 16 - Pile Ridge 3 - 0m - 60 mR/h; 1m - 42 mR/h

Adit 4 - base of slope, northwest Adit 3, northeast
3ft tall, 5' deep, 3' wide

Photo 44 - looking at Adit 4, northeast

Rad 17 - Adit 4; 0m - 40 mR/h; 1m - 31 mR/h

Adit 5 - east of Adit 4, declines south
^{ALT}
28' high; 5' wide; depth unknown

Photo 45 - looking south at Adit 5

Rad 18 - Adit 5; 0m - 90 mR/h; 1m - 40 mR/h

Photo 46 - looking east at site with site name

Photo 47 - looking east, close up of site

Photo 48 - looking east at site with site name

Adit 6 - 3' high, 3' wide, 10' deep

Photo 49 - looking north at Adit 6

Rad 19 - Adit 6 - 0m - 40 mR/h; 1m - 32 mR/h

1700 Leaving to look for third mine site, Adit

3/03/10 ALT Abandoned Uranium Mines. 1. 80.

1745 At third Adit location

Adit 7 - 3' high, 3' wide, 15' deep; south trending

Photo 50 - looking south into Adit 7

Rad 20 - Adit 7; 0m - 60 mR/h; 1m - 30 mR/h

Adit 8 - 4' high, 5' wide, depth ^{ALT} unknown; trends
south east - east ~ 40' deep

Photo 51 - looking east at Adit 8

Rad 21 - Adit 8; 0m - 44 mR/h; 1m - 39 mR/h

Cutln-3 - 7' wide, 20' long, 4' high

Adit 7 in south wall of cutln 3, Adit 8 in
east wall of cutln-3

Photo 52 - looking east at cutln-3

Photo 53 - looking southeast at cutln-3

Rad 22 - cutln-3, west end; 0m - 34 mR/h; 1m - 28 mR/h

Pile Ply-4 - 8' high; 15' wide; 30' long; cutln 3 rock

Photo 54 - looking north at Pile Ply 4

Rad 23 - Pile Ply-4; 0m - 30 mR/h; 1m - 27 mR/h

1500 Sun is set, heading back to truck

Found 1 pit.

Pit Ply 1 - 4' deep, 5' wide, 8' long; filled with water

Photo 55 - looking north at Pit Ply 1

Rad 24 - Pit Ply; 0m - 42 mR/h; 1m - 28 mR/h

Access Rd-2 - hike Road and wash to Adit 7 and 8
and cutln 3

81 3/03/10 ALT Abandoned Uranium Mines

1820 Back at truck to head out

Background Rad - 0m - 20 mR/h; 1m - 20 mR/h

Access Rd 3 - from Adits 7 and 8 to paved road,
Hwy 18 Alt 90

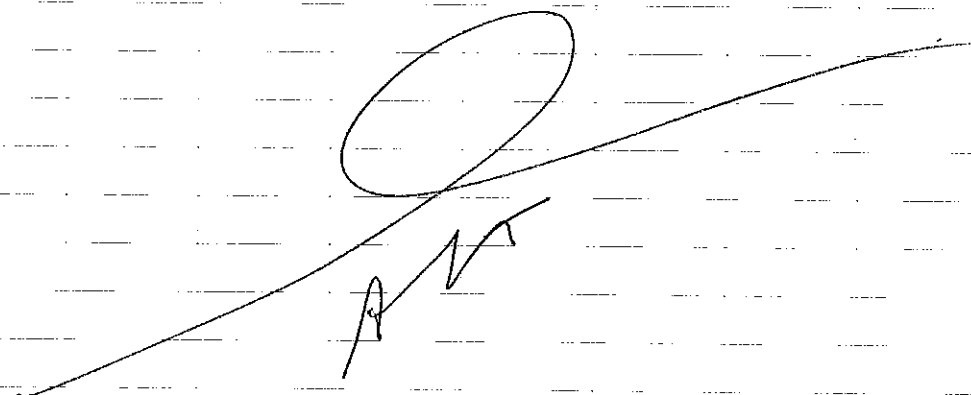
Soils: thin, rocky, tan-red sandy soils.

Rock: Limestone with pyrite-quartz veins
and secondary mineralization. Copper,
malachite, pyrite, and black minerals.

Human Activities: Extensive grazing was
evident. Cow prints and pies. Fences,
cattle guards, corrals. Four-wheel drive
roads, tracks.

Wildlife: Owl, bats in shafts and adits. Cotton
tail rabbits. Deer tracks.

Type of oak (?) tree/bush. Alligator
juniper, grasses, cholla, yucca, century
plant, sotol.



3/04/10 ALT Abandoned Uranium Mines

82

Site Name: NMO135, Section 21

Objective: Site Assessment

Personnel: Annelia Tinkenberg
Eileen Romesser

Equipment: Rental truck, Trimble GeoXM
(SN: 4948447271, 2008 Series); Ludlum
192 (SN: 234149); Fuji film digital camera
(No. 80839493); backup Garmin GPS;
cell phone amplifier; field laptop.

800 At Tyrone Mine General Office to meet
with Jerry Donaldson (575-313-0913).

830 Driving to site, following Jerry.

900 At parking location

1050 Found location, AUM disturbed polygon. Looks
like an erosional feature in soft ash, tuff-
looking material.

Erosion pt - 1 - water erosion, 60' wide, 100' long
Photo 1 - looking southeast at erosion pt - 1

Rad 1 - Erosion pt - 1; 0m - 20 mR/h; 1m - 20 mR/h